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ABSTRACT

In journal format, the author's reactions to a sabbatical year tour of educational television installations around the world and in the United States are recorded. Visits to Hawaii, Samoa, Australia, the Philippines, Japan, Hong Kong and Singapore are described. In part 2, similar visits to school systems in California, Arizona, Illinois, Virginia, Pennsylvania, and the Children's Television Workshop are reported. A visit to the Rocky Mountain Federated States Satellite Project is also described. (SK)

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The Uses of Television In Education Around the World
A Sabbatical Project

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An Acknowledgment

to

Miss Margaret Windsor,
Stanford University

Stanford University Librarian, Financial
Advisor and Keeper of the Files

Part I

The Lord said unto Moses, "What is that in thine hand?" and he said, "A rod." And He said, "Cast it on the ground", and he cast it on the ground, and it became a serpent; and Moses fled before it. And the Lord said unto Moses, "Put forth thine hand, and take it by the tail. And he put forth his hand, and caught it, and it became a rod in his hand." It was this same rod that later parted the Red Sea and released the Israelites from their persecutors.

Ever since television was introduced as a possible educational tool, there has been fear connected with its use. Teachers were afraid it might replace the classroom, deprive them not only of their jobs but also their influence on contemporary youth. Administrators were afraid television might require too much money for their budgets; they were also afraid it might introduce the image of "show business" into the serious business of academic study. They were especially fearful it might be a popular fad which would leave in its wake thousands of dollars worth of outmoded equipment and bring criticism from the public. Everyone was afraid that the warm human contact between teacher and student would be replaced by a cold inhuman machine. Lack of knowledge and experience with electronic equipment added to this reluctance.

In relation to Moses' experience, his first reaction seems to me to be the key to the problem; he saw that it was a rod, a symbol of power. And the resistance and fear on the part of educators and the public ever since television became a reality is because they recognize it as a power, a mighty power which could exert great influence. They have seen its power demonstrated in all fields of thought, from cooking methods to international relations, including an astonishing number of viewing hours by children and youth. After a flurry of attempts to harness this power for educational purposes, the enthusiasm generally diminished; it was a serpent to be avoided. A chance encounter with an electronics engineer at a conference in Los Angeles gave some insight into the reaction of the industry. He said, "What ever happened to the idea that education was going into the use of TV for education? Our plant really stocked up on economy equipment for this purpose, and the demand never came from the schools, or it came in small dribbles that wouldn't pay us to supply the equipment. I can't understand the schools not taking advantage of this powerful instrument. When we realized that schools were cooling off, we went after other markets. Now that same equipment is being used as a safety device in boiler factories. It seems kind of a waste of good technology, especially when the continued demand by education would have brought the price of equipment down fast." I answered that I was sure that cost was not the only consideration but was often used as an excuse. I also explained that I was on a sabbatical leave from a teaching job to find out how and why television <u>was</u> being used in some communities around the world for educational purposes; in other words, how did they <u>handle</u> the "serpent"?

This report includes responses in taped personal interviews with professionals in television and education, visits to educational television stations and classrooms, exploration of media centers and libraries in fifteen countries overseas, one Canadian city and thirty-five cities in the United States.

In June, 1973, I started by enrolling in radio and television laboratory courses in production, and educational media course, and an Asian studies course at the University of Hawaii. Included in these classes was an opportunity to do research on the areas, particularly in Asia, that I expected to visit. Then I went to these places and talked to those active in the field.

My first visit to a school was to Punahou School in Honolulu, a private school with a high standard of quality education and a large endowment and high tuition. I was told that this school had an annual budget for audio-visual aids of $100,000 a year. Aside from the fact that they could obviously afford a luxury item, why did this school spend their money in this area?

I was taken to their television center, serving a student body of about 1200, K through 12, a series of rooms in the first floor area. Their classrooms are equipped with color TV monitors which can receive black and white programs as well. Video-tapes or films can be received over a central transmitter, picking up from three color video-cassette recorders. An AV preparation room includes slide duplicators, a file of recordings, and many devices for preparing materials for the classroom. A graphics department supplies artwork, titles, captions, and other printed materials, and a film library. According to the director of this department, 90% of the faculty in this school use these aids regularly in their classrooms; the demand by teachers far exceeds their supply. I asked why they use them. The answer was that they are modern up-to-date competent teachers who find that students respond best to modern up-to-date methods of teaching.

I asked about involvement of students in this area. In addition to student aides who assist in the preparation of materials, both in the preparation room and in the graphics department, there are courses in television production, with a full studio equipped with cameras, control equipment, scenery and props. Athletic and other school activities are videotaped on the spot and brought back to the school to be shown to the students in the hallways during lunch or are added to the videotape library upstairs. A visit to the library revealed that they were converting all of their dial-access tapes to cassettes; they found this method of storing material more practical. An interesting innovation was a credit card system, consisting of single and duplicate credit cards with a student's signature, for verification, in a swinging overhead file. Students use their card to check out equipment, books or tapes from the library. The school has a clean record for vandalism or theft.

It was reported that Kamahemaha School had similar technical equipment and similar activity in this field, but I was not able to visit there. They operate on a much smaller budget.

My second "visit" was by satellite. A panel discussion was held by members of my Educational Media class over Peacesat, the satellite radio system run jointly by The United States, American Samoa, Saipan, Wellington, New Zealand; the University of Technology at Lai, Papua, New Guinea; University of South Pacific at Suva, Fiji; and Australia for educational purposes. I had heard one of these two-way discussions over the air; a nurses' conference recently held at the University of Hawaii was

reported in detail to these other Pacific areas, and discussion back and forth among the participants resulted in vital information being shared by all of them at once.

Our discussion concerned itself with the use of educational media. We learned, for example, that in 1894 teachers asked for "magic lanterns" for every school, so New Zealand has been using audio-visual aids for a long time. At the present time, there is a National Film Library operated by the Department of Education. There are radio broadcasts every day from NZBC in literature, social studies, and science enrichment, taped by student and teacher teams. Film strips are put out by Wellington Teachers' College which has a new system. Their basic equipment is supplied by the Department of Education. They also put out teachers' bulletins and reading materials. The introduction of TV, according to one administrator, is "on everybody's lips", but it is not yet introduced into the system. There are three issues that have to be settled: whether to broadcast directly into the classroom, whether to use the television programs in the classroom, and how to go about teacher training in their use. He assured us that the "New Zealand teachers are resourceful; we have no doubt they can handle the addition of this tool to their program", but the biggest problem they foresee is technical maintenance. I later visited New Zealand and would report that their commercial TV includes a great many programs of an educational and cultural nature, but I saw no evidence of a plan of education through TV. They expected to broadcast commercially in color for the first time in the two weeks after my visit. Among the most popular programs I saw there were the Doris Day Show, the Lucille Ball series, and Dick Cavett interviews.

Included also in the Peacesat interview with New Zealand was the idea that they felt children should be strongly encouraged to learn the use of modern technology, photography, film making and subsequently television. They are sure these will be important areas in the future.

The general system of education in New Zealand is that the Department of Education designates the areas which should be taught. Teacher opinion is sought in varying degrees with varying impact. The principal of a school may direct, but the school is free to explore ideas. They are then turned over to the Curriculum Development Committee, which continues to explore ideas from this and many other sources. Post primary education is made available for those who pass state exams.

In Wellington, New Zealand, the majority of the teachers have a high school education, with four or five with a full college degree. School is compulsory from 5 to 15 years. Half of the students continue after the eighth year, and 35% continue one more year. 10% of the school population are Maoris; 25% live in rural areas. Since a big Polynesian influx, the birth rate had gone up 50%.

The next place we made contact with was Saipan. They do have videotape equipment in some schools, but they find it hard to keep the equipment in working order. The local TV station shows "Sesame Street" and "Electric Company". There is not enough money in their budget to allow time for teachers to plan programs. The use of film in the classroom is very popular. The films are delivered by mail boat.

My next actual visit was to Pago Pago, American Samoa. I had heard a report of the success of the Samoan Educational Television Project at a conference of the National Association of Educational Broadcasters several years ago, and seeing it in operation was one of the major purposes of my trip. I was the guest of Byron Birdsall, art director for KVZK, and a former colleague at Mountain View and Awalt High School.

According to a report in 1970 by the Department of Education, American Samoa had a school population of 28,000 in public schools and 1800 in private schools, mostly Catholic and Mormon. 40% of this population leaves the island for Hawaii and the mainland United States because opportunity for employment is scarce. Before the TV project, teachers and schools were inadequate, according to Western standards, if Samoa was to take its place in the modern world of nations. According to one member of the original TV team, some teachers had only third grade education, though there were others who had full degrees from American Universities. In 1961 The United States government decided to upgrade this educational process by a reform of the schools, including a building program, and at the suggestion of Vernon Bronson, an educational consultant, with television teaching as the core of instruction. A team of technical and educational experts from the United States went in to revolutionize the teaching process. It was sponsored by the National Association of Educational Broadcasters.

The problem was unique, but it was also typical of many the United States has confronted in developing countries. It was a highly structured system imposed on the Samoan people and thus subject to resentment by the natives as are most of the other "improvements" imposed by the rich American on economically poor cultures of the world. Some feel that it would have been impossible to carry out reform in other ways; others feel that the Samoan teachers, at least, should have been given more say about education in their country, or in their own classrooms. At the beginning, the educational television station, KVZK, was producing 600 teaching lessons a week, an unbelievable amount. The goal was to produce fluent literate bilinguals, capable of pursuing individual vocational and social aims. Samoan teachers faced the students directly, had the responsibility of preparing classes for the TV lesson and following up with classroom activity and individual help.

About three years after the project began a research team from the United States tested high school seniors in Samoa and came out with the report that the TV was a failure because the students ranked lower than their contemporaries in Los Angeles high schools. This is hardly surprising, considering the low rate of literacy when the project began, but the report was accepted by many administrators in the United States as conclusive; TV education was no good. Some subsequent research efforts have come out with a similar opinion, though at least one of these, sponsored by a highly regarded university in the United States, was done by people who never took the trouble to go to Samoa.

I spent two weeks visiting the TV station, watching the production and planning of the lesson programs, now down to about 200 per week, and then visiting two elementary schools and one high school. I witnessed a high degree of competency in both areas, both schools and station, some better than others. The teachers have now had the advantage of in-service training and have enrolled in education workshops on the mainland. They are obviously better prepared than they were when the project began. The schools are sturdy and comfortable, the students alert and working, both physically and mentally.

There is a political side to this discussion. American Samoa is governed by an American, white governor, appointed by the President of the United States. There is frequent complaint from the native Samoans that their whole culture is threatened by this domination. When the project began, the governor was sympathetic to the TV project, and he was fairly well accepted by the Samoans; this resulted in satisfaction and great progress. When a new governor came in, who was not interested at all in the TV, the complaints began, The mattai or chiefs of the Samoan ayiga or tribes, who comprise most of the legislature, began to be fearful that their absolute

rule of their family groups might be threatened by the new knowledge brought in by the Americans and that their religious and other cultural heritage might be overwhelmed by the new "teachers". The third governor brought in ambitious plans and projects of his own, but he resented the money being spent on the TV. The natives didn't like him, but they got support in their criticism of the TV because of his complaints.

Finally, the first Samoan Director of Education was appointed, and he immediately began reducing the number of programs and insisting on the programs being more in the area of enrichment than in direct teaching. The Americans learned to use more Samoan culture in their presentations as they learned more about it themselves. It was decided that the high school curriculum would discontinue the use of TV, so only elementary schools were using it when I arrived.

According to John Barry, an assistant Director of Education, "each year since 1964 students have done better, though there has been a sharp change, first in the coming of TV, and then in the change to enrichment over direct teaching. If these changes could have been more gradual, the scores on tests might show more progress." The first class of eighth graders graduated in June, 1973. I visited their classes and found them responding well to both the TV and the classroom teachers. Their workbooks, work sheets, and many other curriculum materials were supplied by the TV station staff, TV teachers visited with the classes and the teachers, and the programs I saw, both in tha station and in the classroom with the students, were of high professional quality, in TV and educational standards. The students were bilingual; they spoke English, not only in the classroom, but also in the town and on the beach. They might make more progress in the language if they also spoke it at home, but this is true of all students in bilingual instruction.

The NAEB pulled out their support when the first governor was changed, but the project has continued under the Department of Interior. I felt that the cooperation of the TV staff and the education staff was the greatest input to education I have ever seen, but when this cooperation falters, and misunderstanding and mistrust take over, it has no more chance for success than any other method. The serpent is then allowed to prevail.

But the serpent is still a rod, and some evidence of this is seen in the community where the TV station provides communication among the people themselves and between them and the rest of the world. The literacy of the whole island is on the rise.

A visit to Western Samoa showed what the South Seas were like one hundred years ago, because there is no compulsory education, and very few modern improvements have been introduced. There are 150,000 Samoan people here; the average family size is nine, though some have fourteen to sixteen in one family. Our guide from the famous and excellent Aggie Grey's Hotel, considered the best in the South Seas, spoke excellent English, perhaps learned in a private school. He also took us to his fales, a group of bamboo huts, to show us his prize possesion, a TV set. It was, unfortunately, in need of repair. He said he thoroughly enjoyed the programs from the station at Pago Pago, had many visitors to his home to see the set, until it quit operating. He hoped some traveling engineer would come along and fix it for him, since there was no means of repair on his island.

Children we met on a tour of the island spoke no English except "dime" which they implored us for every time we stopped. Western Samoa appeared to be the ideal natural environment so many people love to see and long for in their dreams, but its degree of civilization was very limited. The women of the country sit on a cocoa

straw mat and make more straw mats, cook, and bear children. The men ride their horses to the coconut plantations owned by their ayigas or families and hold many family discussion meetings. They are an independent country.

In Papeete, in Tahiti, I was a viewer of TV in my hotel. All programs were in French, in black and white, and of the quality of TV at least twenty-five years ago. I saw no evidence of educational fare.

In my research at the East-West Center in Hawaii, I found an account of a TV experiment in New Guinea with programs beamed from Australia. The natives were dissatisfied by them because of "too many white faces" and because it was "too Australian". A major factor in communication there is that the natives speak 700 different languages.

The next part of call was Sydney, Australia. Ron Lea, an enthusiastic producer-director for science education, explained the system currently booming in Australia. The Australian Broadcasting Commission (ABC) is the government-sponsored network which includes an educational division, located in Sydney. This division works with an education committee with representatives consisting of administrators, curriculum experts, supervisors and teachers in special subject areas. This committee determines what program-lessons are needed; the producer-director from ABC, a subject area specialist, writes the script, after extensive research, and plans the production. It is then reviewed by the education committee, and when it is approved, it is put into production. Professional performers and technicians do the program series, keeping the quality of production equal to that of any program broadcast by the ABC. This high quality of production is a very important factor in the acceptance and use of these materials by classroom teachers throughout the nation.

Program lessons are broadcast live and videotaped by library personnel in individual schools for use on closed circuit systems or in special viewing rooms in media centers or classrooms. A Commonwealth grant to school libraries all over the nation had made possible the purchase of sophisticated recording equipment (I saw nothing but Ampex) and had given a boost to the use of television programs by the schools.

I got a sample of the interest and excitement that these programs arouse just in listening to Mr. Lea explaining the plan for a new natural science series, then in process. He went into detail about just one segment of the series, and I found myself getting really excited about the life-style of termites! I'm still looking forward to seeing the program someday.

Schools can buy videotapes from ABC for $70 Australian (about $100 U.S.) to become a permanent resource in their materials centers. Teacher guides to all programs are prepared by the ABC in conjunction with the education committee.

A visit to Brisbane, a city bridging two rivers in the north, gave me a fine opportunity to visit four schools that use television programs in their classes. Jeff Olsen, Media Center Director for the Church of England Boys' Grammar School, K through 12, a private school, gave me a tour of his center and set up visits to other schools. His center has a viewing room adjacent to the control room with videotape recorders, projectors, etc. There are three screens, one for films in the center and one on each side for TV. Two classes may be accommodated here at the same time (about 70 students). There is also a television course with one studio and a control room, equipped with cameras, monitors, and control equipment. His students were preparing a weekly news program called "Churchy News" for viewing during lunch hours in the viewing room, including mostly school activities, previews of coming events, etc.

Adrian Halliday, head librarian at Brisbane Boys' School which is 100 years old, gave me a tour of their facilities. There is no AV director; a staff member has certain time off to tape ABC programs. The tapes are sometimes used in classrooms and sometimes in the Gallery (an auditorium). He expressed concern because a direct line was not provided from the library to the Gallery so they could receive important broadcasts live and attributed this to false economy. They gave only portable sets which play professional tapes and cannot play Sony PortaPak tapes. Their library sound tapes are all on cassettes because they have only 35-40 minute class periods, not time enough to set up reel to reel tape.

He gave me a brief explanation of the Australian school system. It was first brought into existence by an Act of Parliament. There are government representatives on the Board of Trustees. A Grammar School Act finances education, partially subject to government orders. Boys' schools and Girls' schools are financed by this act. Government auditors check the State schools about once a month. He expressed concern over the Radford Scheme which is a series of exams by local schools, replacing the state exams that used to determine who would go to the university. This is an attempt to reduce the traumatic experience students used to have in passing this stiff exam, but Mr. Halliday said that teachers have to spend part of their time now preparing their exams, and he is afraid some schools will make their exams easier in order to place more of their students on the accepted list. He believes you need a truly competitive exam to determine scholarships. Treasury University education is going to be free. Treasury scholarships are available. He said, "Foolishly, they think everybody can now go to the university, but the university doesn't have elastic walls".

On our tour of his school we looked in on their foreign language lab where they teach French, German, and Japanese.

On the same day I visited Yeronga Girls' School, 1200 students, a State school. Here the head librarian, Mrs. Tate, showed me an extensive slide collection in plastic pouches holding about 40 slides each. These are used instead of film strips. All AV is handled by the library, budgeted by the library together with books. About half of their budget goes to AV materials, including listening posts, some complete packages such as for remedial reading, recordings, film and eventually television. They are waiting for color to come to Australia before they purchase equipment; it was expected that it might be two years before this would be accomplished. The reason they spend so much of their budget on AV is that the price of books is going up and the cost of AV aids is going down. Teachers and students also prepare movie film loops for use in the classroom. A visit to the principal and an assistant to Mrs. Tate revealed that they were eager to begin the TV and felt it would be a great boon for their educational needs.

Another visit, to Ashgrove, a Catholic private boys' school, showed a library equipped with a TV closed circuit system, a full time librarian who spends her time taping off the air from the ABC and distributing to classrooms on demand. They had an elaborate system for cataloguing color slides in hanging plastic pouches. 50% of their AV budget is spent on films, 50% on TV.

The Australians look to America for ideas, for equipment, and for methods of using these aids in the classroom and were under the impression that all schools here were completely equipped. They said, "Why not?"

In Manila, in the Philippines I found one success story and one disappointment. I heard about a unique training center for television at Channel 7 in Quezon City,

about a half hour's ride from Manila. Through a flood left in the wake of a 130 mile an hour typhoon the night before, I traveled with an intrepid, unbelievable taxi driver to a physically run down TV station to meet with an enthusiastic young man, Oscar Ocampo, who is running a school for television as a part of the station's service. The station is commercially owned, but the program has the blessing of the Head of State, President Ferdinand Markos. Students in this program spend from 8 A.M. to 8 P.M. in learning camera techniques, use and maintenance, radio broadcasting to learn techniques of sound, and other television principles of production. One educational program carried on the station is the teaching of Pilipino, the government-accepted successor to other dialects on the islands. After these 30 hours of training, about two months and a half, students are encouraged to become apprentices at the station for at least a year, though some are immediately employed at stations in the islands. Through the efforts of Mrs. Markos, wife of the President, who inspired the building of a lavish, handsome cultural center in Manila, drama has been given a tremendous boost, and some of the programs attempted by this training school are among the most ambitious I've heard of anywhere. The flood had prevented many students from attending class that day, so I was not able to visit them in session. They were eager for criticism, and I was invited to return. I assured Mr. Ocampo that he had one of the best training programs I'd seen anywhere, including the United States.

Through my research in Hawaii I knew of a leader of television education by the name of Father Leo Larkin. Through Mr. Ocampo I was directed to find Father Larkin at a complex of Catholic schools called S.J. Atteneo, also in Quezon City. Father Larkin has been in this field for a number of years and has traveled extensively, also observing the use of educational television around the world. In the Philippines, he says, "We don't have to worry about the validity or the value of the medium; it has already been proved. Our problem here is getting educators to know enough about it to really say how they want to use it to best advantage." In 1964 he began a pilot program partly financed by a Jesuit University, partly by Ford Foundation, and also by business support. It was sent by closed circuit, then micro-waved to a commercial station on open broadcast. They put up a 2500 megahertz tower, sending five signals at one time. When the programs were evaluated by teachers and administrators, they wanted more, mostly in elementary schools. 136 million pesos were spent in ten years and covered major cities throughout the whole Philippine Islands. A project study, endorsed by all concerned, was prepared for the Department of Education. The Secretary endorsed the program to the World Bank to be refunded. A new Secretary, however, took away his support, and they were turned down.

When they had been funded, formal education had been the strong element. When they were turned down, the program was diversified into non-formal education, for drop-outs or adult education. There are 8 million students in school, 10 million out of school in the Philippines, so that area could well receive attention. In other countries other media can supplement the education. In Manila the TV programs are emphasizing cooperatives, family planning, nutrition, and rural development. They are working on an educational TV station for the South Philippines. There was no question of his disappointment at being turned down on the formal education project. He had worked so long with such great response from all concerned that it was difficult to realize it could end so abruptly. If he could get past the discouragement, he might apply again.

Father Larkin expressed admiration for "Sesame Street" and "Electric Company" and wished that the Children's Television Workshop would do a version for the Philippines,

done in Pilipino, the new national language, with characters and cultural details from his adopted country, as they have done in Mexico.

I also learned from Father Larkin that in 1961-62 India had received a Ford Foundation grant, and in December, 1972, they announced plans for use of a satellite for education in 1975. He was skeptical of good results because India expects to reach 560 million people. He said the Philippines has to contend with 74 different dialects; what would India do with twice that many? He felt that it was an idea that "died in the dreaming". The Philippines also is putting up a regional satellite, more expensive because of a limited coverage.

The next more successful venture was the visit to NHK, the government-sponsored system in Tokyo, Japan. Film, radio broadcasting, and television sent throughout the islands of Japan are housed in a splendid new building. I watched the people coming to work in that building and learned that there are 15,000 employees. Their technical facilities are superb, their studios immense, and their programs that I viewed in my hotel were excellent. Here I learned of the Japan Prize, a contest in educational television programs held each year, with participants from around the world. A program called "Carascerendes" received the Japan Prize for 1973. It teaches Spanish for Americans and was produced by a Texas station. "Electric Company" received second prize. It was not yet being used in Japan, but "Sesame Street" was being used in junior high school. My tour guide at the station explained that children are not trained to hear English in the lower levels, though they are taught to read in English. (Later I talked to a young Japanese business man on the plane who reported that he watches "Sesame Street" regularly in order to learn the language, but also to learn about the United States.) Japan won the second Japan Prize in 1973 for a radio program, and in 1972 they had won the TV prize for a program in biology.

The station produces its own programs, puts them on videotape, and sends them over the air at certain specified times. The main one broadcast is news, but they also include programs in math, science, history, their national language, social studies, and economics. In social education classes they teach French, German, Russian, Chinese and Spanish. Music and art are taught in all kinds of programs.

Classes received programs first, but ten years ago correspondence classes began for dropouts and adults. There are two or three correspondence schools in each prefecture (similar to our states). Students enrolled in the TV courses have to attend the school 30 days a year. Sometimes they watch TV in a group, sometimes by themselves. Teachers are hired by the NHK station; some also teach in high schools or college. They usually have a teaching certificate. They are trained on the job. Each person in Japan pays a tax or license for his TV set. Education (the station) gets part of every fee.

Schools get films from the Ministry of Education. Less than 10% of the schools have videotape machines; very few have cameras or studios, but most schools have receiving sets. Videotape cassettes are becoming less expensive and may have more use.

In my hotel I watched an English language teaching program several times and then had the privilege of watching this program being videotaped at NHK. Two producer-directors take turns doing the show. I was amused to find that an Australian English teacher was featured, so all of Japan was learning English with an Australian accent. On the program there was also a Japanese teacher who presented the same material in Japanese. Film clips showed dramatic scenes of family situations, including children or young people. The conversations included the same vocabulary as was featured for

this program and referred to in various ways by the two teachers later in the program.

I asked about the connection between the Ministry of Education and the NHK, and there is none. Teachers tune in on these programs if they wish to. There is no direction from educators as to the content or methods used; the station proceeds as it wishes to. I felt this was a major weakness in their plan, though I learned that there is some cooperation between broadcasts in the prefectures and the schools.

I also asked about a program of French nude dancers that I had seen on the air a. 11 P.M. My guide explained that this was from a commercial station, not from NHK. I asked if there were complaints from the public, particularly parents. He replied, "Yes, from the sensible ones, but there is also a demand from some segments of the public to supply this kind of entertainment, and the station does so because of the extreme competition from NHK".

My first introduction to ETV in Hong Kong was from Father Larkin in the Philippines who said, "This is it. This is the way television education should be done. Colvyn Haye is an Irishman who will welcome you with open arms. He has done a fantastic job there". And he was right. I believe Hong Kong has the best organization and the soundest educational base of any I saw around the world. Mr. Haye was trained in Great Britain in the tradition of the BBC. He and his deputy director, Pierce Sun, who is Chinese, have a new building with excellent facilities, and they are reaching 335,000 elementary students each week with educational programs. They have planned the building in such a way that when they move into the secondary level, each room and studio will be partitioned off so that they can double the amount of production. They not only expect to go into secondary education but feel it will be the most important area of their service. I shall quote directly from the taped interview I had with these two TV educators:

"We put on a massive public relations campaign within the profession, and this we did for two years before we went on the air. We did this to sell the teachers on the idea. You see, we had to show the teachers that we were not trying to get rid of them. It will only succeed if the classroom teacher uses it. Second was involvement. We said to the teachers, that we were teachers (every employee in the center has a teaching credential) so we got to them before we ever started. We said, 'Look, we think this is a powerful and exciting medium for use in the classroom.' The third step was to get them to help us make the programs. We said, 'You will help us; you will tell us what to do, and more important then that, you will be the watch dogs, because when we make the programs to come into your classrooms, you will evaluate them'. Week to week we have a massive evaluation program in which we ask them to tell us, 'Are we succeeding?' They told us, they helped us to plan the program and they now tell us constantly whether they like the program, and we take incredible pains to reshape what we do in the light of their comments. This is the raison d'etre for our service, teachers making programs for teachers, involving teachers. I think it would apply all around the world. If you start this way, you can't miss. We overcame any sales resistance to the idea by visiting the schools every day for two years, holding meetings. It was like any sales campaign; first you prepare the ground, then you make the sales pitch and then you ask your customer, 'Are you happy? Come back and tell us why not.' It's just like teaching children. We can't teach them unless we involve them.

"Now that we are in our TV production center, our doors are always open to teachers. We have a steady stream of visitors from schools. We never refuse invitations to talk to schools; quite consciously we go out and involve them, and I think this is the only way we can be a success.

"Our salaries are paid by the government. We are all in the Department of Education. It is somewhat similar to the organization in Australia with one major difference. We supply TV sets to the schools. We try to have one TV set for each two or three classes. If it is an 'aided' private school we subsidize the purchase; if it is a government school we pay for it. I have found it heartbreaking to be in some schools and know good programs are on the air, but the set is usually in the headmaster's office, where he never looks at it, so the school is not getting the service."

In the secondary level they expect to go into videotape cassettes, because the timetable may make direct reception impractical. He reported that a good videotape recorder could be purchased in Australia for $5000 (1/3 more in U.S. dollars).

He continued, "Why do they use our service? We can basically take the student out of the classroom, or bring the world inside it. With the help of outside crews, the electronic marvels of communication: captions, cartooning, graphic arts of all kinds, we give the teachers an audio visual aid which they cannot buy. We prepare guides which accompany our lessons but within a syllabus prepared by the department of education. We give the teachers suggestions for preparation and follow-up. They are not bound to use them but usually do because we have the right to define what we do and how we think it should be accomplished, but it is always suggested. After all, they have helped us prepare the programs. I always explain that they have to work harder, to put out a quality product, but our teachers are responsible people. We work with 10,000 teachers a week. As our system expands we hope to involve twice that many. The trained teacher gets a service she helped to provide and will evaluate; the untrained or new teacher gets a model, a valuable in-service for our teachers, because the people who prepare our programs are subject specialists. The notion that we replace the teacher is ridiculous; we couldn't exist without the teacher in the classroom."

Mr. Sun took me for a visit to Mary Knoll School, a Catholic School, the following day. It is an aided school, with partial government support. Classes are taught in Chinese except for English classes. It includes elementary and secondary grades. The principal of the school greeted us and reported great satisfaction with the TV addition to their curriculum, especially since the students look forward eagerly to the programs. We visited a fifth grade English class with a young Chinese teacher, who was conducting a series of drills on certain phrases in English, particularly "Shall we?" and "Let's". She used the blackboard and asked questions to which the children responded, sometimes in chorus and sometimes individually. This activity led up to the TV program which presented the same topic. Animation, captions and sprightly musical background introduced "The Stray Cat", a family incident about the discovery of the cat and many discussions about what to do with it. Explanation and drill on the same phrases were presented by the TV teacher. The class responded just as they had with the classroom teacher (in Samoa they had greeted the TV teacher, "Good morning, Judy" when she came on the screen). The addition of the dramatic suspense involved the children emotionally as well as giving a chance to practice their drills. I was surprised to learn that all of the actors in these programs are either teachers or students; since their schools are all on double session, there are always some available. The quality of the program was excellent, and the children were fascinated. Mr. Haye told me their ratings are higher than the commercial stations in Hong Kong.

I also watched educational programs like this in a downtown shop. They are broadcast over a commercial station, more economical than over an educational transmitter, and the entire community can watch the programs. "Sesame Street" and "Electric Company"

are broadcast over a different channel, but Mr. Haye said they've done a similar one from their production center, and I was introduced to their "Little Bird". The programs are in color, but all schools do not have color receiving sets. I believe Hong Kong is a model for instructional television, in facilities, personnel, organization, and in educational philosophy.

In Singapore the educational TV station is temporarily located in a teachers' training college. Their services are so much in demand that everything is over-used, and the equipment is taxed beyond its capacity for maintenance and repair. Long school vacation had just begun so there was planning but not much production going on. Singapore is now an independent country and has always enjoyed a good income from international trade. They are very proud of their progress in modern civilization and urban renewal. I saw a model of the proposed television complex which they hope to build in two years on another site. It includes a 1000 seat auditorium, so is expected to be a cultural center as well. According to Mr. Tan, my guide and director of the station, they initially produced about 400 programs a year; now they do about 200. They have put more emphasis on quality than on quantity.

Many programs use animation in this station. I watched two animators at work on a program using flying birds. The station really functions as a media center, providing many visual aids as well as TV programs. They put out a kit, a plastic case holding a black bag for changing film, film strips, still pictures, models, sound cassettes and printed material. These are aids to the TV program, sent to the schools on request, along with a teacher's guide, also prepared at the station. Evaluation by teachers is done every quarter on each program. A report is then printed and sent to all schools. An examination system helps the teachers' acceptance of the TV aids. Teachers and pupils are used as talent, but professionals are also used. One studio is used by the college training course. Mr. Tan summed up their major problem, "Too many things in too small a space. We and the equipment may wear out before any of us can be replaced."

CEPTA is an adult education organization funded by the Singapore government and a German industrial firm. They have ambitious plans for TV and film for the future, are spending five years in the planning of programs. Eventually they expect to have camera crews ready to respond to demand from any country in the world. They also use this station at the present time.

I had expected to continue on to India, the Middle East and to Europe, but I was meeting the long school vacation when neither schools nor stations would be in session. My money, which was devaluated approximately one third over the entire trip, began to run thin, and I was getting a bit tired of sight-seeing. I flew from Bangkok (Where I found no evidence of ETV) to London in one non-stop flight, except for brief pauses at airports. I was in London only a brief time but was able to make one visit.

CEDO, the Center for Educational Development Overseas, is a training center for which students are selected by developing countries for curriculum, audio-visual aids, or radio and television production for education, and the cost is borne by the British government. I watched a math program using a mock-up slide rule, a survey of high school activities produced by a Russian student, and others, on a brief tour of their facilities. Theirs is an ambitious program and very worthwhile in assisting other countries in these techniques.

I came back to the United States feeling that the developing countries and the industrial ones, at least in the South Pacific and Asia, were likely to develop

right over us if they continued their rapid progress in the last few years. Since my return I have learned of an almost unlimited budget being allocated in Saudi Arabia for development of television education in the schools. Other significant reforms in this area are going on in Israel, in the Ivory Coast of Africa, and in El Salvador.

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Part II

A trip around America revealed a variety of ideas in the use of TV, among which is the media center concept, already reported in Australia. My first interview was a visit to the educative services of Ampex Corporation, located in Sunnyvale, Calif. I learned about their Pyramid system, a Program Yielding Rapid Access Multiple Informational Device. This is a program retrieval system, based on the assumption that any user can obtain any material from the beginning, irrespective of prior access by any other person. It is used in libraries or media centers in carrels, where the student can begin at any time from the beginning of a program lesson. The user identifies himself by Social Security number. On a touch-tone like a telephone he punches up the number of the desired program. A minicomputer finds the program. The computer records on digital discs, which transfer into pictures with questions and multiple choice answers. One digital disc can record 6000 pages of information. A wrong answer triggers another set of lesson materials to bring the student around to the right answer, or it can bypass the information. A TV picture provides 14 lines and 24 characters. It can even be used from a home which is equipped with a touch telephone.

Ampex showed me one system being assembled for a college in West Germany. I also visited Oak Park High School in Illinois and saw the first system installed by Ampex. It cost $1 million, but the cost is now down to $400,000. The AV director said it would not carry a TV picture because of the variance from the regular monitor in the number of lines but the engineer in charge of the control center said there is a converter that makes it possible to use a TV picture, also. Sound and picture materials are made available to the individual student.

There were nine installations of this system in the United States in February, 1973, those in California located at Los Angeles City College and at Stanford University. At LA it is used for registration, to save the time standing in line. At Illinois State it is used in a 30 seat classroom for teacher training. At Stanford a teacher can find out immediately how many students understand a lesson. The computer is the size of a calculator. The system designed for Germany is more sophisticated, can show a one and a half hour videotape on a "slave" unit, reducing it to a small picture for the individual student.

The purpose of much of the equipment in media centers is based on the idea that the student can work on his own, at his own speed. Like flexible scheduling, this system will work only when the student is motivated and willing to work by himself. There is still a so-called "attendance" problem. The AV director at Oak Park, with one year of experience working with this system, felt it was not worth the money; the engineer, however, was very enthusiastic about it and felt it had great potential, in high schools and other levels, and that more users would continue to bring the price down.

Another system was introduced at the University of Illinois, called Plato. It is transmitting program material as far away as Santa Barbara. This is not television but another distribution system for programmed learning. It has its own language, can send small pictures and diagrams as well as print. After watching several lessons, I felt it was useful only for courses that used numerical computation, not much in the humanities. I was introduced to it as the way to schedule programs at the educational television station at the University of Illinois at Champaign-Urbana.

A modern media center has been installed at new Solano Community College at Fairfield, California, under the direction of a former Mountain View High School graduate, Dr. Donald Kirkorian. There were 38 employees in the Learning Sources Center, and

they have expanded since. It includes libraries, with print and audio-visual materials, a complete printing system for all publication in the college, television production studios, a dial access retrieval system for audio cassettes, films, and sound recordings. They also have recording playback and performance equipment for videotape. They have full-time engineers for maintenance and handling the equipment.

Another resource is a series of courses by Coordinated Instructional Systems. More than 50% of the courses at the college are with media instruction, the rest by the instructor. Math courses have two hours of tape and one hour with the instructor per week. ADA is recorded by a sign-out and sign-in system which also tells the materials used. There are twenty carrels where students can use audio cassettes or videotapes. A course like advanced chemistry, which few students take, can be given this way. An English course teaching research techniques was also available through this method.

When their new facility is ready for use it will include two channels in color, three for videotaping. They do not have color cameras yet. (They have only had one theft in three years of operation.) There are two student viewing rooms, one for the faculty, and the beginning of a graphics department. It will actually have most of the equipment of an entire TV station, as well as libraries, except that there is no plan at present to transmit programs over the air.

The schools in Anaheim, California have had ITV for 14 years, funded by Ford Foundation and the local citizens. They have gone to color for fall, 1974, since their equipment was outmoded and they didn't want to replace it with black and white. They are looking at the budget in all directions and are uncertain about the future. They are pioneers in the use of the C-Cam 60 print system for high frequency broadcasting and can control color in the studio for every classroom. This was formerly used only at race tracks. Programs are presented in social science, Spanish, and music for the 3rd to the 6th grade. Children watch TV in color at hime, and Dr. Helen Clower, director of ITV, says, "It's hard enough to build interesting programs without putting them through outmoded equipment." They have tried leasing programs, but their teachers rejected eight to ten of them last year, so the practice was discontinued. They do not broadcast to kindergarten or the first two grades because it is too expensive to hire the personnel to produce programs. They need a program for the language arts.

They have constant contact with teachers by committees in the schools and station personnel. A program takes thirty hours of work for a 15 minute segment. Finding film clips, working out graphics, and writing the script are details of work after the TV teacher has the idea. They have to be creative but also structured because it must be planned to the second. Then the plan is worked over with the producer-director who knows the fine techniques of TV. The TV teacher also provides a study-guide. This will include performance objectives and vocabulary to be used in the program. Classroom preparation will determine whether they need maps, whether they are to take notes, whether they need charts, etc. Teachers are not bound to use the suggestions relating to the lesson. If they don't want to use the TV they have the option to refuse. They are encouraged to bring ideas to the attention of the TV teachers. They should be encouraged to feel a partnership, a "marriage between the two", according to Dr. Clower.

I was privileged to watch a taping session of a program which had been in process of production for three months by the station and a representative from NASA, Mountain View. Models, film clips, an interview and instruction were used to explain flight, all done in a professional manner and with professional quality.

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At the California Association of Teachers of English, meeting in Los Angeles, I attended a session in which a teacher and principal of a junior high school in Concord told of the use of TV production as a principal activity in their school. Their program has about 13 different parts to it, serving many needs. Most germane to the program is Campus News, done last in their schedule so the news is current. They will report not only campus news but also what jazz groups are appearing in their vicinity and other entertainment tips for the students. They do weather reports and odd comedy, send crews to cover athletic events. They give a sports question of the week, and each home room group sends in an answer, with a prize given for the room that gets the right answer. Horoscopes, students' and celebrities' birthdays are all included. The student birthday program presents the student's face as if by magic. English classes write soap opera scripts which are then produced by the television group. They featured a fashion show around a Japanese theme, a women's lib program with boys playing girls, a Valentine show with comedy, and important school announcements inserted at intervals.

The list went on and on, as imaginative program ideas were used to capture the interest of the students. The most significant show had a human relations theme, done by the English department, which included discussion of racial tensions in their school.

Some significant remarks were made by Stephen Dunning, author of the poetry collection, Gift of a Watermelon Pickle, and the new President of the National Council of Teachers of English: "We don't have time always for the long range plan; we have to provide a stimulus for the students in our first period class Monday morning.... We can change things--not so much talking and regurgitating in the classroom and more doing." He cited a student who wrote "There's not enough doing--no doing together, something where we could reach a point toward which we could work. There's not much of a common reality." Television production in many schools is providing just that.

A visit to the new Cypress High School, near Anaheim, showed me an expanded English department which included photography and TV production. Three rooms comprised the TV studio and control room and office. The studio had been "papered" with colorful carpet samples, which also served as sound-proofing. Cameras and special effect units were small but of professional quality, and videotape cassette recorders in color made it possible to keep programs for evaluation.

At the MECCA conference of librarians and audio-visual directors throughout the state, meeting in Anaheim in February, Dr. Wilson Riles introduced a panel discussion of 14 California Congressmen by saying, "We look at a veritable avalanche of technological equipment. They are meaningful today and carry great promise, not only for present use but for thresholds of education beyond the traditional system."

The panel showed the tremendous interest in the technological aids on the part of Congress. Subsequent small group sessions explored the changes then in discussion on the Title I and Title II federal programs. Librarians pleaded for the right to use these funds for staff, particularly technicians, as well as mechanical equipment, because the machines are of no use alone. Unfortunately, by the time the changes were accepted by Congress, this provision had been overlooked.

Another piece of insight at this conference was in a talk by Frank Capra, famous director of films, who said, "Film is the only art form begun in our lifetime, a new and wondrous medium, as emotionally universal as music and the dance and as intellectually ecumenical as mathematics." He described one professional technique,

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of increasing the speed of sound and dialogue to gain a sense of urgency that adds to dramatic effectiveness. This same technique is used by the Children's Television Workshop in "Sesame Street", the "Electric Company" and in their new show, "Feeling Good". Their research finds this educationally effective, too.

I attended a meeting at the Los Angeles County Educational Office of RETAC, a regional group composed of administrators and media specialists from San Diego to Santa Barbara. They were planning a questionaire to be sent to all member schools for a report of how much TV was actually being used in the classrooms.

After hearing a report from a producer-director, they budgeted $5000 for a TV series on the history and culture of Asians, the Blacks, and the Chicanos, to be used in conjunction with a course by the state colleges in Southern California, satisfying the requirement in the Education Code for this kind of preparation of teachers. Six or seven professors and teachers developed the syllabus as a team. Each writer then developed a TV sequence. The cost of this series was estimated at $60,000, but it included filming on location and six writers who were funded by the Dean of Continuing Education. It may be presented by tape or by cable and is potential for the entire state, as a part only of the course work required by the colleges and the state. The programs will be on 2-inch tape. Los Angeles will put them on 3/4 inch video cassettes. Los Angeles also proposes to set up a leaders' training workshop to prepare leaders to go out and conduct seminars on the series. They might also be available for other areas of the state.

I also learned at this session that the Los Angeles City District now has its own educational station with a full schedule of programs, both in elementary and in secondary levels.

A visit to San Diego State College showed a tremendous amount of activity in the communications field: radio, film and television. They were broadcasting to schools, to adults, to the college, and to the general public. There were 400 communications majors enrolled in their courses.

I next interviewed Marty Taylor, San Diego County Audio-Visual Coordinator, who was critical of "educational TV" because the emphasis is on the curriculum instead of the art. He says it's not so important to know what educational television is doing as it is to know what commercial stations are doing. They are making an impact, for one thing, because there is more of it. He said, "All of the media are educational, even if their primary purpose is entertainment and making money. What we see on the TV is motion picture; TV is only a medium for distribution and the air waves are only a carrier, but the old art form of the stage, enhanced by new techniques, photography and editing, makes the film the great art form of the century...To me film is first of all an art form; it is relevant to the audience--makes them cry, get angry, get involved in the personal lives of the characters, and so gives relevance to the viewer. The great communicators have been the great artists. One of the great problems of those who produce educational materials is that they are so subject to criticism that they take the safe road, trying to please every group."

Mr. Taylor feels that students want to come to grips with life, and they are afraid that neither print nor schools will truly give it to them. Using a successful classroom teacher on a program series is a mistake, unless this person is also able to communicate directly with the audience. He cited both Canadian and Yugoslavian film which were artistic, breaking even language barriers because of the quality of their art. More cables would enable us to use more films, via television, because

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the greatest obstacle is the classroom schedule.

At Saguaro High School in Scotsdale, Arizona, I visited a library that includes all media, including television. Student assistants tape programs off the air for use in classrooms, and they also produce programs. I witnessed an ingenious use of equipment, from overhead projectors used for lighting TV programs to the use of cameras in the negative for titles. They had four microphones, two cameras, three tape recorders and a phonograph. There was a central box, a two way intercom system, and one mike mounted in the ceiling...They used a sync generator with an edit facility and special effects. They also used cheap dimmers on special occasions. The student in charge had taken no courses, but he attended a Sony workshop for two days and had watched TV courses at a technical school when he was younger. He just considered it a hobby, but after the TV experience in the last few years he was considering it as a career. It was interesting to note that, in spite of the enthusiasm and interest and evident high standard of performance, they were denied the use of a classroom or studio in the library because it was being used for a math class. They were busy designing facilities for the school in the future.

TV was being used in one English class, called Communications, to evaluate their many activities. This turned out to be one of the most exciting courses I saw in my entire trip. Rose Nack, an English teacher, introduced a unique course that started with 25 students as an experiment and now had sections totaling 150 students. Basic to their instruction was a set of the Earl [redacted] cassettes for business [Nightingale] success, which established the philosophy for the class. Old radio dramatic scripts were read, performed and taped for discussion of relationships. This activity led to the students' research of the 40's and 50's and the chief resource for these periods were the students' own parents. The parents got so involved in the class that they even came and taught the dances of the period. The day I visited these classes the parents of one of the students demonstrated the jitterbug, the Peabody, the waltz, the fox trot, the polka, and others, and all of the sections met in the cafeteria and danced. Once each year, a party is held, including all those who have taken the course and their parents. A vaudeville show is prepared, including students and parents. In 1973 the parents were also going to provide the refreshments. I was invited to remain and attend but was unable to do so. They already had reservations for 900. A videotape of the party was made every year and used in class discussion later. The students of their course were enthusiastic, cooperative and capable of communication with their own and other generations. They were also learning English composition and public speaking techniques.

Mrs. Nack has now written a workbook and a text on how to use these techniques, available from the Earl [redacted] distributors.
Nightingale

I also visited two other high schools in Scotsdale; one had a film class that used videotape in preparation of motion pictures. The other, Chapparal, a new series of buildings, had included a media center which was turning out TV programs for classroom use, videotaping drama classes and others for evaluation, and making available all kinds of media equipment and service. It adjoined the library.

I visited Arizona State University at Tempe on a non-production day so didn't see programs in action. They produce about 15 programs a week on their educational television station, using many others from Public Broadcasting Service and other sources. They have new modern facilities, with a great deal of room for expansion. One of their studios was being used for a drama department production of "Macbeth", with regular auditorium seats on raked platforms.

At the University of Houston, Houston, Texas, Gulf Regional Educational Television Association helps to fund the educational station. The station also receives funds from member school districts. This is optional for each district; they may sign a contract to pay 40¢ per student. During the first semester, the state matches with 40¢ per student. The station is reimbursed by the second semester so receives 80¢ per student. They broadcast open air, and teacher program guides are sent only to member schools. 390,000 students were receiving TV lessons. Some non-member schools may use the programs, but there is no way to prevent it. Some schools have had trouble getting receiving sets, or they have had bad reception, so school districts would prefer to pay only for programs from K to 8, but they are paying for all at the moment. The station now provides an antenna which costs only $5 to $6 and has skyrocketed utilization by the schools. The city of Houston recently voted out the possibility of cable TV, though some smaller cities have laid the cable but not gone ahead with programming. It was felt that an FCC ruling is needed because some schools can receive programs from Austin or Dallas stations, who charge more than GRETA. Galveston is completely wired for cable, and cable companies have offered studio facilities to the schools, but the school system can't see spending the money for production; they prefer to use programs from other sources.

The schedule at the high schools ranges from 50 to 80 minute periods: they are on a quarter system, but some outside Houston are on a semester system; therefore, most high schools videotape the programs. All programs are on film or 2" tape, so many schools don't have compatible equipment. Half the schools have sound recording equipment. Some county schools put programs on video-cassette. A state network, it is reported, would help to coordinate the system. Now a bicycling system is in effect. 14 regional centers are now being revitalized and are no longer buying film but are starting to buy video-cassettes. The cost of such an operation is more than most school districts feel they can afford at the present time.

The station feels that there is too much come and go in the use of TV by teachers; either it is on top of their curriculum offerings or it is on the bottom. Both of these seem to be a mistake. The station feels that TV should be in the middle, an integral part of the day's lesson. They would like to do a series on Texas history, possibly a consortium but it doesn't seem possible without more staff, which might be possible if there were a state network.

Marty Bowman, TV coordinator for GRETA, took me to Aldine School District Media Center which serves seven counties in Texas. They do not house film, videotape, or film strips since these are available from Region 4 Educational Media. They do, however, monitor GRETA programs four times a week and supply slide duplicates and overhead projector enlargements laminated for use on bulletin boards. They have a 4H program for nutrition which is free and is used frequently by both elementary and secondary schools. They have taped a social studies GRETA program in this center and may go into more of this kind of service. They employ two artists who do a great deal of graphic arts. Teachers are also encouraged to come to the center to use the art facilities there. They also duplicate audio tapes. In one of the high schools there is an advanced printing department as a part of their vocational program. TV is also being used for the educationally handicapped; the program guides have to be very flexible to include all of these different needs. The Aldine Center provides printed forms for reports, signs and captions for use in fund-raising or bond issue campaigns or in classrooms. "All of these things make education interesting, and that's what education is all about", is the comment of Wayne Wade, director of this media center.

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Houston also has a High School for the Performing Arts, where students may learn radio, TV and film as well as drama, art, and the dance. A sophomore media student gave me a tour. He was enrolled in a radio production class in which all students already had passed or were about to pass their third class operator's exam and would be equipped to work in a radio station. They were preparing a big show for the weekend, partly as a memorial to a young black student recently killed in an accident. All of the areas were working creatively on their expression of what his life had meant to the school. It was inspiring to visit the classes.

In New Orleans at the educational station there is no production for instruction in the schools, but the school system buys selected programs from outside sources, and the station runs them Monday through Friday from 10 until 3. The station is financed by subscription, by grants, and by an annual auction; there are 1800 members on the auction, which operates all through the year. They did produce one series, seven shows on the use of new equipment. A two way phone call on TV followed each program for questions. This was an inservice series for teachers.

The station has done several "educational" or cultural programs, including "Rapping About New Orleans", the prison system, Kindergarten Kids, Museums, and collecting about the city.

Dr. Covington from the public schools coorrdinates the school use. She explained about various sources they use for in-school programs.

In Columbia, South Carolina I was conducted about the educational station by Margaret Kalmbach whose husband started the station. On his passing, she went to work for the station but recommended they hire a young manager. The activity started in a high school in 1958. It was an experiment in which they taught plane geometry and French I, with students as cameramen and two able teachers, one of whom is still teaching a TV lesson. During the second year five high schools were connected by a closed circuit system, and algebra was added to the lessons. It was discovered that you could learn by TV, not necessarily better or worse, but with a classroom teacher who coordinated with the program, very effectively. Teachers were afraid they were being replaced at first, but over the years there has been less and less opposition. The legislature was watching, and they thought it would be an excellent resource for students and teachers.

New industries came down to the state, hoping to get cheap labor, but not always successful. They were reluctant to train new workers, so television has taken on this job. In the beginning, the activity was all in the secondary schools, but at the present time, the state is blanketed with a dual network with five fixed open circuit stations broadcasting for elementary schools during the day, and a state wide closed circuit network broadcasting six simultaneous subjects at one time, going to over half of the secondary schools in the staee. Each year a budget is submitted, as in any other state agency, and as they get the money, more schools are added. In 1973 there were over one half million school children watching the programs.

In 1969 the State Department of Education took over the ITV. They decide on a series they want to present, select the teachers they want to present it and send them to the station where they have an office and can work with graphic artists. They have a year to produce the series and have six series going at one time.

Programs are all on tape; the teacher works with committees and produces a guidebook for the series. It includes preparation, follow-up, and test materials. Resentment over someone else presenting the material has disappeared as teachers realize it adds enrichment they can't possibly take time to produce. Schools that don't have music and art can get it by TV.

54 courses are available for college; it is possible to get an MBA or engineering by TV in conjunction with the university. Medical courses use two-way closed circuit. The governor has conducted symposiums on their major cultural center.

The State Department decides the schedule; the industry programs are dubbed and distributed separately on from ten to twelve playback machines and a computer card reader starts the machines.

They feel the need to go into color; everyone wants an attractive mobile colorful thing, so since the use by teachers is voluntary, the station feels obliged to make the programs informative and attractive so they will want to use it. When asked how they pursuade the legislature to continue their support, Mrs. Kalmbach said, "We invite them to a big fancy dinner once a year", but it is obvious that they are also offering a splendid service.

There are several other state networks located in the South. The only other one I visited was at the University of North Carolina at Chapel Hill. Hugh Fisher, a producer, gave me a tour and explained their set-up. The state operates eight TV stations, has 98% coverage of the state's populated area: Channel 4 in the middle and Channel 2 in the north are on VHF; the others are on UHF in a crescent pattern of coverage. In 1955 Channel 4 was on three campuses and was used mostly for public relations. There were production centers in each and a transmitter in one place with microwave to hook them in. Each now has its own transmitter and its own microwave.

Mr. Fisher admires the closed circuit system of South Carolina because he feels limited with a single channel. In 1974 they expected to do over forty series for elementary and secondary schools. They are developing the use of video cassettes or helical scan videotape. These can be distributed through the mail, like films.

They also produce film. They have color equipment and have done series for PBS. The studios were only equipped in black and white but a grant was on application for color. They also need a mobile unit to reach a long, narrow state.

University courses are done through university extension, and ties are being developed with community colleges, many private ones. They did a pilot series called "Your Future is Now" aimed at the GED certificate and have done conversational German and a teacher TV utilization course. 25% of the teachers have had some TV experience with their classes. In 1969 the trend was to lecture in large auditoriums, but this has changed to resource materials, from commercial sources, stations, or consortia. A Ripples consortium produced the popular primary series "Inside Out". Ten districts have their own studios and equipment; 600 schools have videotape.

A state network would provide programs much more cheaply, Mr. Fisher reported.

Washington and Lee High School in Arlington, Virginia has a unique English course, a script writing lab for programs that will be used by the television crew on closed circuit or videotape. They do radio and acting for the TV programs but also sometimes use actors from outside the class. It began as a quarter course but had ex-

panded to a full semester. They did one program for all Virginia on the educational station.

They also have a film class which sees and produces films. Each student was required to adapt a story or play and prepare it for production, with one word dialogue.

A senior student in charge of radio production reported that he has overcome his fear of facing people after taking this kind of course. He also works at a local radio station morning and night as a disc jockey. They play records over the closed circuit sound system in the cafeteria at lunch time, with service announcements between comments about the records. One I heard was a warning about smoking, an original script. They also occasionally do game shows.

The TV lab class has three cameras and an ingenious arrangement of small monitors for their control center. I watched a videotape of a dramatic show about acrobats which was to be aired over Channel 53, Washington. The programs are in black and white. Students are not allowed to run equipment at the station but feel they could do so with a little practice.

I next visited the ETV station at Arlington, Virginia where Richard Pioli gave me a tour of their facilities and discussed their policies. They have been very much stimulated by the Corporation for Public Broadcasting and have originated many programs for them. He felt that the Corporation was in the midst of possible change, exploring whether they should concentrate on pre-school, adult, or some other level.

An interesting program broadcast in 1973 was called "Metroactivity", designed by teenagers for teenagers. A young student from a high school conceived the idea, brought it to the station, and the station put him in charge. He insisted the teenagers be given the right to decide for themselves what they would discuss. They were, however, given a producer-director to advise them, particularly on policies that affected the whole station and the community. It was a very successful venture, 13 half hour programs. Each program cost $5000, paid for by the station. They received ninety pieces of mail from teenagers when the topic was on careers. The station was considering continuing the program for another year.

Mr. Pioli strongly recommended that more minority students train for the ETV field because of the quota system required by the FCC. There are more job opportunities than there are personnel trained to fill them.

This station uses color at night and black and white in the daytime.

A visit to the county Education Department revealed that they are planning a new career center building, including complete studios for television production. At the present time, they are equipped to tape programs off the air by a timer set to turn on the tape and the TV monitor at an appointed time. The program is recorded and is ready for the teacher to pick up the next morning. This is a part of their educational media service, which includes film and many other audio-visual aids, and where teachers are welcome to come in and use the facilities. They are looking forward to an increase in the use of television after the career complex is a reality.

In New York City I was privileged to visit the Children's Television Workshop which produces "Sesame Street" and "Electric Company", and is beginning the new series called "Feeling Good", their first venture into programming for adults. Joan La Frano

explained their procedure to me during a taping session at a rented studio. She has been with the Workshop since its beginning and reported that every idea that has ever been tried has looked impossible, but they have forged ahead, and creativity of their staff has brought the ideas into reality on the screen.

An all day session taping "Electric Company" is expected to produce at the most five minutes of material that will actually be aired on the program. Such minute attention to detail means that each short segment must be rehearsed over and over until the producer-director is satisfied. Then the programs are viewed by a research team of professors, teachers, and other experts. Finally, the segments are tested on children in day care centers and in classrooms throughout the area. They discover what portions the children like best, but most important of all, which segments actually teach them the content. They are serious about teaching the material, and have employed top quality artists, professional theatre actors and technical experts to catch the attention, hold it, and give the material in the most entertaining and stimulating way. Their budget is $8 million dollars a year, through Ford Foundation, Public Broadcasting Service, and the U.S. Department of Education, but since they draw 8 million viewers, the cost can be estimated at $1 a year per viewer.

A budget cut made it necessary to find other sources of revenue, and they had just begun a sales program of stuffed animals and other characters from the first two series, as well as books and other merchandise items.

Another venture is a program called "Open Sesame", comprised of clips from various former programs, to which any country can dub their own language and use for their own specific purposes. They also produce a version in the native language for Mexico.

One team builds the sets, designs and does the art work. Then a post production team does the electronic transitions and other dramatic TV novelties.

Probably the most exciting innovative school I visited was E. Washington Rhodes Junior High School, an all black inner city school in Philadelphia, Pennsylvania. According to Jacob Hoffman, Principal, discipline problems are almost non-existent, and attendance has increased enormously in the three years this school has existed. Named for a black editor, now deceased, E. Washington Rhodes School has constant visitors and inquiries from over 2000 school districts. I first read about it in the February 6, 1973 issue, of TV Guide, which reported an exciting break-through in reading by the use of TV in the classroom. This has also recently been reported in The Christian Science Monitor.

The school has decreased many of its problems by dividing into sub-schools or "houses", A, B, C, and D, with a house director in each. There is an additional area for the creative arts, used by all houses. This has cut down normal movement 75%; 25% move at one time, with two teams, eight classes going at once. Other classes are self-contained. There is a separate cafeteria for each house, and a twenty minute lunch period. The house director has charge of 14 teachers and 400 children. The teachers are from the regular system, both black and white. Mr. Reese Brown, a black house director, was my host for the day and graciously showed me the entire system.

The school operates on the principle of individualization, and the students like the personal touch. Classrooms are furnished with tables and armchairs. There is an Instructional Materials Center, an expanded library with many audio-visual aids. Math at the 7th and 8th grade level (actually non-graded) is taught by computer,

with a classroom teacher helping individuals. The computer team is located in a central office downtown where they are equipped with all of the students' test scores with which to counsel him by the Industrial Management Program computer as the next step in his learning process.

Sylvia Blackwell was the black teacher who explained the TV setup in her classroom, a 5th and 6th grade group. All subjects except electives are taught here, with a teacher's aide also in attendance and numerous student teachers from nearby Temple University and Kent State. Commercial program sponsors of the most popular programs selected by the students were contacted and agreed to supply master tapes of these programs and also the shooting scripts of the production. Teachers then worked on the scripts making them easier to read (larger print and more space) and duplicated them for students. The program is played by videotape on the classroom TV monitor, and the students hold the script and follow the dialogue as they watch the program. Thus the words take on life and meaning, and the pictures take on an intellectual flavor; the writer and the producer have a double impact on the reader-viewer. Students are so interested in this procedure and the vocabulary study that grows out of it that they have worn out the ten dictionaries on her shelf. They have become interested in reading all kinds of materials. I saw them reading everywhere, in groups at tables, in the library area, and on the floor. She has never experienced anything like the motivation to reading this has propelled.

"I Love Lucy", "Gilligan's Island", "The Rookies" were some of the programs that have been most popular. One "Gilligan's Island" episode involved a takeoff on a myth, so the class went into research on that story as an extended activity. I asked why they couldn't just assign the story, and the reply was that they wouldn't have read it. Model sets of the incidents were around the walls, with clay figure characters, and advertising words and slogans were mounted and featured on bulletin boards. The students also enact the plays from the scripts or from improvization after the programs. Students were very friendly, proud of their classrooms and their work; they even borrowed my camera so I could have my picture taken with the class.

A young member of the class escorted me to the front entrance, and on the way I saw a bulletin board with twelve foot high signs reading "TV News" and pictures of student reporters. I asked about this, and he replied casually, "Oh, we have a studio and cameras in a room off the library, and representatives from each house give a morning newscast each day from their groups over our closed circuit." Students also received citation and their pictures in the paper when their social studies class took pictures of a two block area in the neighborhood, made recommendations for a cleanup campaign, interviewed the residents door to door, and proceeded to do the cleanup job themselves, including renovating two two-story houses. Pictures of this activity were also displayed on the huge bulletin board, and the teacher of the class has made a professional movie of the project. The media are in constant use in this school, for almost saturation communication; I feel indeed honored to have had the opportunity to visit.

Earlier in this report I mentioned a visit to Oak Park High School in Illinois. Dr. Richardson, Head Librarian, explained their system. Teachers sat down and decided what they wanted and got industry to provide instant access to audio and visual sources. There are 75 carrels for student use and 25 for the use of videotape. There is random access to sound tapes, with a computer calling up tapes and a copy printed out in the control room in 60 seconds. Slides are recorded on a disc like those used for instant replay. 1000 slides can be accommodated. In the use of the Pyramid system 85% of the programs are made by teachers. 50% of the videotape programs are also made by teachers, while the others are procured from industry. Mike Kronmiller, the engineer in charge, says that it costs a lot of money, but "You can't measure education by dollars and cents". He reports, "This is a good system, fun to work with. It frees the teacher because students get fundamentals from tapes; it does not create less jobs because there will always be a teacher since only a teacher can handle the student." Their book budget runs to $17,900 with $4000 for purchase or prepared material and $5000 for film rental and $15,000 for supplies such as film, transparencies and graphics.

At New Trier East High School in Winnetka, a suburb of Chicago, ETV has been operating for eight years, going from a non-media concept (or print only) to media as supportive of education. Dick Deanhart, Director of the activity, explained, "Most teachers think of ETV as the talking face, but the new consortium approach puts twenty or thirty agencies together with content that is tried and true, then turns it over to agencies properly funded to do it, which have the talent to follow through". The programs are distributed on tape or film, almost all in color. NIT in Indianapolis is one source for these programs; another is Great Plains, Nebraska, and a third is Western Productions in Hollywood.

At New Trier they have a microwave four channel network to serve about 23 schools. Each school contributes 25¢ per pupil. The station gets 33¢ from Title 2, ESEA.

"The biggest problem", according to Mr. Deanhart, "is overcoming the stereotype of teachers--that they are too busy to use the TV, but the TV can be an assistance to their teaching if they will learn how to use it." A program like "Inside Out", for instance, deals with feelings of the child: fear, happiness, confusion, problems of divorce, death and how other children have coped with these feelings. It is open-ended so that discussion can follow the viewing. Teachers need to know how to prepare a class for this, but it is a stimulating addition to the course.

I sat in on a preview of an ancient history program from WETA in Arlington, distributed by NIT, and the location shots and narration from the ancient lands surely made the viewer want to read the books that were recommended at the end.

Film crews go out from this station and take 16mm. movies which are then transferred to videotape for convenience. A four level course is taught at both East and West campuses, working with the Sony Rover. They were just finishing a program funded by USOE, Title 3, called "Future Studios", showing what control youth has over the future, a cross-curricular approach. They have also used U.S. History and ecology programs in eight different courses in the high schools.

The station operates both a TV cooperative and a film cooperative. There are six on the staff.

Evanston Township High School, whose enrollment is now down to 4500, started in 1955 on a Ford Foundation grant to teach typing by TV, under Wanda Mitchell, now retired. In 1963 they developed cables connecting rooms. Coaches and the superintendent were regular talent on programs sent to the classrooms. Now that the enrollment is down from its original 5000 students, there are budgetary problems. Teachers use their own time to prepare programs. Some are on Title III. Others were prepared during the summer and developed for dial access. They have a back room full of dial access equipment because they abandoned its use in favor of cassettes.

Mr. Neff teaches a full time day of television in classes totalling 100; these include Fundamentals of TV, TV production, TV Direction and Self-directed. Some students take it for two years, and occasionally they come back to do a special project for other classes. Mr. Neff also teaches an adult class in night school at a high school for drop-outs. He reports very little vandalism in their area.

His final comment was "It's very hard to sell teachers. They are still afraid that TV will take their jobs." As a result most of their emphasis is on what it can do for students.

At the University of Illinois at Champaign-Urbana the educational TV station has been in operation since 1955. They are remodeling their facilities and their program structure. They are concentrating less on educational or instructional TV and more on broadcasting to the public. Cable TV is the distributor, via cassette. It is picked up by 15 TV systems. They broadcast six hours a day. They have taught freshman chemistry by tape; the teacher stops the machine for discussion, and psychology and dance courses have used it. The great advantage for the dance is the use of closeups.

The State of Illinois Department of Education does a great deal of studying about TV, but does not show signs of funding for all schools.

In St. Louis, Missouri I was surprised to learn that the schools had pulled out their support of the ETV station about three years before. Since this had been one of the major pioneer efforts of TV in education, I was curious to know why. It seems there was a major budget crisis in the school system at that time, and the choice was between the TV and teacher salaries. I visited the ETV station, however, and learned that the county educational department had continued its support, and that the station was still flourishing and sending programs to schools in the area. They were embarked upon a bond issue at the time I was there, and if it passed, there was a good possibility that the St. Louis schools would bring back some support.

The ETV station was on engineer's strike crisis the day I visited, but the girls that worked at the station as producers or office help were all pitching in and running the cameras and other technical equipment, keeping the station operating almost as usual. The crisis was a real breakthrough for women, and they were enjoying the experience very much.

I joined a tour of high school students on a field trip and saw previews of the "Letter People" series, a takeoff on TV game shows, where all the people were cartoon letters of the alphabet.

Don Johnson, station manager at Denver, Colorado praised the efficiency of his teachers and technicians. They work together so well that one sewing lesson lasting thirty minutes is done in exactly thirty minutes on tape; only one program in 72 has had to be redone.

They borrow from museums, private parties and every agency. They pay for evening TV through family subscription and the annual auction which was staffed with 750 women in 1972. They had over 4000 items for sale.

Supervisors in the schools help teachers with utilization of programs. Subject area committees provide guides for the programs and arrange the schedule for 500 schools. TV teachers visit the schools but not as often as he would like. It is really a full time job to do the programs because they are expected to do professional quality programs. They are regular teachers and paid a teacher's salary but are on special assignment to the station instead of the classroom. Some have been on this assignment for ten years; others come and go. They are selected by studio audition. He feels that the creative talent of a TV producer-director and the academics of the teacher are an ideal combination. They may argue about the program but are quick to say at the end, "How great we did it together." He said, "We try to think things out so we know what we are doing. At this stage of the game you'd better win more times than you lose if you're going to be of value to the system."

One area of great value that is relatively new at the station is a summer school program over the air. It started with a class of 25 and has now grown to about 2500 students enrolled. Regular teachers are hired to grade papers and prepare exams. Mr. Johnson feels that the high school level has barely been tapped for potential TV use, and modern inventions will make it possible.

At the University of Washington in Seattle, Ron Centora showed me about. They were converting from black and white to color in their public broadcasting station. They do daytime programs for schools, picked up by cable systems as far away as Walla Walla. They are also picked up in Yakima and in two districts in British Columbia. They were busy preparing their program guide for teachers, done by committees with curriculum advisory subject specialists. They have done a second grade music series of 62 programs. Teacher producers come from the district on contract and the station reimburses the district. One third of the programs for the year are done locally, with one new one, and the rest come from outside.

They do some programs from videotape to film. They will broadcast in color, but most schools have black and white equipment. When it dies, they will probably go to color. The TV teacher explains about color on programs so the student will have some understanding even in black and white.

Mr. Centora said, "You can have the best program in the world, but if the teacher doesn't know how to use it, the students won't benefit, and if the teacher doesn't like it, it won't be turned on. The station has hired utilizers to go out to schools and to parents and combined district groups because to get the teacher to use the program is the key to success."

Mary Lee Martin, producer of the successful music series and the teacher in the programs, said that teachers should not feel guilty about sitting pupils in front of a TV set because it has certain important unique qualities; there is eye contact with thirty students at once, and there is enrichment, getting the student out of the classroom through TV and film.

BEST COPY AVAILABLE

Another successful music series that has been on TV for a number of years is carried by the ETV station at Clover Park Technical High School in Tacoma, Washington. The unique feature of this station is that there are two engineers, and all of the rest of the technical job is done by students at the school. Several TV teachers put out program series regularly, which are picked up by schools in the Tacoma area. Parents assist in preparing an AV Kit similar to Singapore's, with models, film strips and still pictures.

A Provincial Media Center is located at the British Columbia Institute of Technology in Vancouver, BC. It is part of Civil Service at the present time, part of the Department of Education. Studies were being conducted and it was expected that they will be set up as a Crown Corporation outside of Civil Service. This would bring into being a government informational network which would handle information for education and other areas. The separate provinces have their own networks and are not likely to become a network. Twelve people on the staff of the Center may become a nucleus of what ever system is decided upon. They were preparing programs both on film and videotape in black and white and dubbing films they had bought and putting them on videotape which is less expensive in getting copies to schools. They buy the videotaping rights along with the film, good for five years. They were waiting for the government to sanction updating to color.

Another whole use of media is production in the schools. One seventh grade social studies class in a local school does a pen pal letter on 1/2 inch videotape and sends it through an ambassador to a foreign country, and the foreign country responds. It was good for them to find out about their own area and the other area, too. They felt they were having a "groovy" time, but they were learning all the while. According to my host at the Center, "Kids can learn to operate videotape in ten minutes, but many teachers are frightened; it takes them longer." Some high schools have TV production courses. On Vancouver Island they produce programs about their own area, especially on jobs, mainly logging operations.

Certainly the most exciting potential use of TV in the future was demonstrated in my visit to the Rocky Mountain Federated States Satellite project in Denver, Colorado. In a very modern office complex I was introduced by Robert Mott, Assistant Project Director, to the space world, in studios and in technical equipment (even the secretaries looked like they came from "Startrek") all preparing for the launching of ATS-F (6) on May 30 from Cape Canaveral. This is a cooperative project with NASA in which the satellite would be held for 33 days, and then turned over to twenty-two different experiments in educational television. It is to operate for one year, until May 18, 1975.

One project is the Satellite Technology Demonstration, with six Rocky Mountain states, plus Arizona and Nevada. They are producing a series in career education for seventh graders in a dramatic format of a space family, where the children are making up their minds what careers they might want to pursue, exploring many opportunities they might not normally know about and engaging in self assessment in order to make intelligent choices.

The project staff numbers 65-70 people, on the job since January, 1972. $10-1/2 million has been budgeted, financed by Health, Education and Technology. One feature of the program is the possibility of talkback from the classroom to the satellite through use of the Peacesat satellite in the Pacific. They will be able to reach one half of their audience at a time, then after five minutes, the other half. They will cover with a "footprint" 500 miles wide and 800 miles long, from the Mojave to Maryland, all feeding from the Denver Master Control.

Another experiment using the satellite this year is under the Appalachian Regional Commission which will do a series from 15 or 16 locations, mainly instructions to teachers of reading, reaching media centers from Chautauqua, New York to Huntsville, Alabama. The Veterans' Administration will teach staffs of hospitals. In Alaska, they will teach languages and give Indian Health Service. WAMI is a teaching project including Washington and Idaho out of the medical school at the University of Washington in a pre-med uplink from Seattle to Alaska.

After the one year experiment, the satellite will move near the equator where it will be turned toward 560 million people of India. Father Larkin's guess that this educational idea "died in the dreaming" may turn out not to be true. There was some question at Denver whether Indian ground operations would be ready at that time to begin this tremendous educational task, but about the same week I saw these fantastic activities in preparation, India set off an atomic bomb, so there may be more potential there than the rest of the world is aware of. It may turn out that batteries will be used to power receiving stations in remote areas where there is no electricity but the plan goes ahead in spite of enormous problems, not the least of which is the tremendous number of dialects spoken by the people of India. It may, however, be the greatest force for unifying that country that they have ever known.

My trip almost began and ended with a satellite, offering speculation beyond the problems involved in television for education. I wish to thank all those who gave of their hospitality around the world, in schools, stations, and even on planes and trains, and to Mountain View-Los Altos High School District for granting a leave and a half Sabbatical.

There is no question now in my mind about the "power of the rod"; there is only the question of how far our vision and imagination can take us in the future. I met many eager and enthusiastic educators, both in professional education and in professional television; I hope we can realize throughout the world that we are all in the same business, that of enlightening the community, both of the present generation and the youth of our time.